



Hyperloop Seating Options and Capsule Width

Richard Macfarlane 14 Nov 2013

This document is considering the possible sizes of Hyperloop's capsule, and the seating layouts. The options are for a 2-wide or 3-wide configuration.

The need for a temporary aisle

It is assumed that the passengers will normally be loaded in a seating module via an airlock at one end of the pressure hull, as side-opening doors are structurally challenging with the high internal pressure. In an emergency in the tube, passengers need to be able to move along the capsule to an exit hatch.

A toilet would be expected, even if it is only usable if the capsule is stopped for some reason. Telling people there is no toilet makes them want to go!

So the passengers may need to squeeze up while the center seats are folded to make a temporary aisle. This would be used very infrequently.

Cylindrical section

The strongest and most economical shape is cylindrical, which is ideal for the pressure difference between the cabin and the vacuum tube (10 tons/sqM). Any other shape will require space-wasting internal stiffening. This also gives a good balance of cabin width and headroom.

Hyperloop seats wider than airline economy seats.

Hyperloop's seats would normally be wider and more comfortable than economy airline seats, 430-460mm (17-18"), but the passengers would need to squeeze into a narrower space if ever the aisle is used.

3 seat width vs 2 seat width

The real choice is the capsule diameter, whether it is wide enough for 2 or 3 economy seats.

The 3-seat option give an internal diameter of 1600mm (63"). and gives a choice of 3 economy seats, or 2 very comfortable business class seats. This is the minimum width for 3 seats, to allow for a temporary aisle to be used. The headroom is reasonable for aisle use.

The 2-seat option has a minimum diameter of 1200mm (47"), the economy and business class are the same width. The seats are quite wide, but cramped when the center armrests are folded to make an aisle. Headroom is quite limited, and some passengers could feel claustrophobic. The capsule could be bigger with the same seating layout, but this would increase costs for no extra passengers.

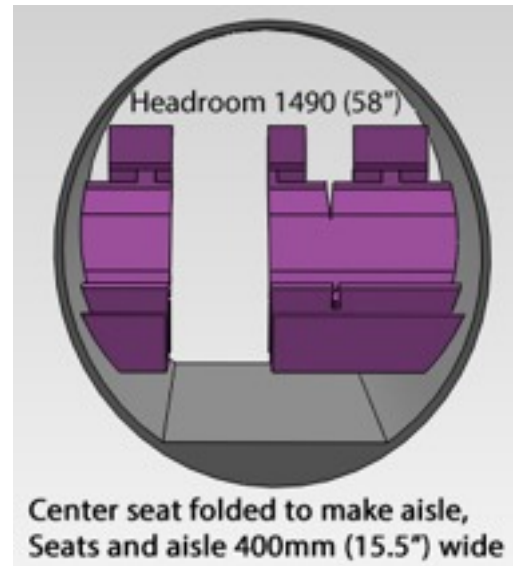
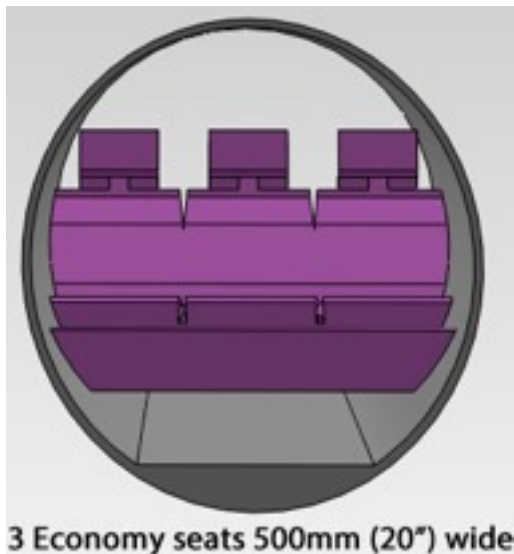
Offering greater comfort during Hyperloop introduction

A good option would be the 1600mm capsule, but with only 2-seats wide for the first years of the Hyperloop service. Public acceptance of traveling in a tube would be better with the more comfortable seating option with an easier aisle for possible toilet use.

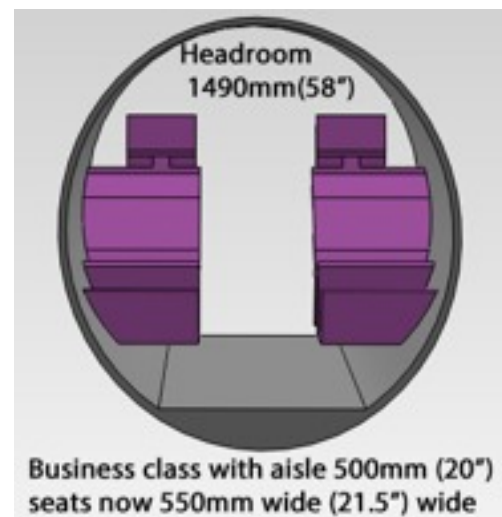
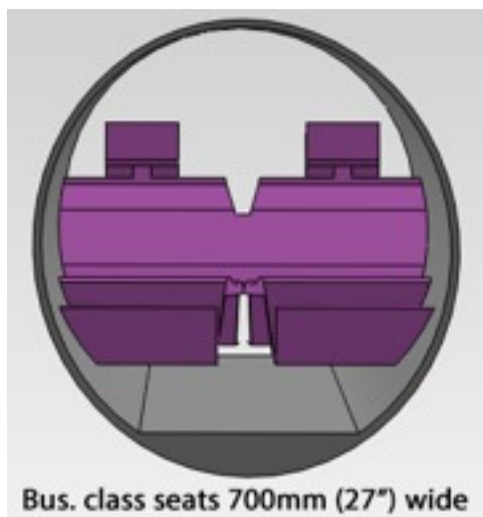
3-seater capsule, 1600mm (63") internal diameter

This is a good size, it is 3 seats wide for economy and 2 wide comfortable seats for business class. The headroom is reasonable at 1490mm (58").

Folding the 3 economy seats to make an aisle is tricky, but it would not be used very often.



The 3-wide economy seats are comfortable and wider (20") than airline seats (17"). But to make an aisle the center seat must be folded, and it is quite cramped.



The business class seats work really well. They are very wide and comfortable. The armrest and part of the seat folds to make a good aisle.

2 Seat-wide capsule, 1200mm (47") wide.

This is the smallest possible capsule size. The economy and business class seats are the same width. The seats are a comfortable width, but quite cramped when folded to make an aisle. The aisle would be very seldom used.

Headroom is limited, and the capsule would feel small.

